In the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1-7. (Cancelled)

8. (Currently Amended) A method for controlling accuracy and repeatability of an etch process, comprising:

(a) providing a batch of substrates, each substrate having a patterned mask formed on a film stack comprising at least one material layer;

(b) measuring dimensions of elements of the patterned mask on at least one substrate of the batch of substrates;

(c) trimming the patterned mask on the at least one substrate using a process recipe based on the measurements performed at step (b), then;

(d) etching the at least one material layer on the at least one substrate;

(e) measuring a thickness of post-etch residue and at least one of compacting or removing at least a portion of the [[a]] post-etch residue formed on sidewalls of the etched structures based on the thickness of the post-etch residue;

(f) measuring dimensions of etched structures formed on the at least one substrate during step (d); and

(g) adjusting the process recipe of step (c) or/and the process recipe of step (d); based on the measurements performed at step (f).

9. (Previously Presented) The method of claim 8 wherein the steps (b) and (f) use an optical measuring technique.

10. (Original) The method of claim 9 wherein the optical measuring technique is a scatterometric measuring technique.

11. (Previously Presented) The method of claim 8 wherein the steps (b) through (f) are performed using processing modules of a single substrate processing system.

12. (Previously Presented) The method of claim 8 wherein the step (g) further comprises:

modifying a time duration or process parameters for trimming the patterned mask.

13. (Previously Presented) The method of claim 8 wherein the step (g) further comprises:

modifying a time duration or process parameters for etching the material layer.

14. (Cancelled)

15. (Previously Presented) The method of claim 8 further comprising:

thinning the post-etch residue to a thickness of less than about 10 nm.

16. (Currently Amended) A method for controlling accuracy and repeatability during formation of a gate structure of a field effect transistor, comprising:

(a) providing a batch of substrates, each substrate having a patterned mask formed on a gate electrode layer of the gate structure;

(b) measuring dimensions of elements of the patterned mask on at least one substrate of the batch of substrates;

(c) trimming the patterned mask on the at least one substrate using a process recipe based on the measurements performed at step (b), then;

(d) etching the gate electrode layer on the at least one substrate;

(e) measuring a thickness of post-etch residue and at least one of compacting or removing at least [[a]] the portion of post-etch residue formed on sidewalls of the etched structures based on the thickness of the post-etch residue;

(f) measuring dimensions of etched gate electrode structures formed on the at least one substrate during step (d); and

(g) adjusting the process recipe of step (c) or/and the process recipe of step (d) based on the measurements performed at step (f).

17. (Previously Presented) The method of claim 16 wherein the steps (b) and (f) use an optical measuring technique.

18. (Previously Presented) The method of claim 17 wherein the optical measuring technique is a scatterometric measuring technique.

19. (Previously Presented) The method of claim 16 wherein the steps (b) through (f) are performed using processing modules of a single substrate processing system.

20. (Previously Presented) The method of claim 16 wherein the step (g) further comprises:

modifying a time duration or process parameters for trimming the patterned mask.

21. (Previously Presented) The method of claim 16 wherein the step (g) further comprises:

modifying a time duration or process parameters for etching the material layer.

22. (Previously Presented) The method of claim 16 wherein the gate electrode layer comprises doped polysilicon.

23. (Previously Presented) The method of claim 16 wherein the step (d) further comprises:

providing HBr and Cl_2 at a flow ratio HBr:Cl_2 in a range from 1:15 to 15:1.

24. (Cancelled)

25. (Previously Presented) The method of claim 16 further comprising:

thinning the post-etch residue to a thickness of less than about 10 nm.

26. (Previously Presented) The method of claim 23 further comprising:

using a plasma comprising one or more gases selected from the group consisting of nitrogen (N_2), oxygen (O_2) and hydrogen (H_2).

27. (Previously Presented) The method of claim 26 further comprising:

providing nitrogen (N_2) and hydrogen (H_2) at a N_2:H_2 flow ratio in a range from 3:1 to 100% of N_2;

maintaining the substrate at a temperature between about 200 and 350 degrees Celsius;

applying power to an inductively coupled power source between about 1000 and 7000 W; and

maintaining a chamber pressure between about 500 and 2000 mTorr.

28-30. (Cancelled)

31. (New) The method of claim 8, wherein the step (e) further comprises:

measuring a critical dimension of a feature is done in addition to measuring the thickness of the post-etch residue.

32. (New) The method of claim 16, wherein the step (e) further comprises:

measuring a critical dimension of a feature is done in addition to measuring the thickness of the post-etch residue.